

DMP4065S-7(ES)

Rev-1.2

SuperMOS – SOT-23 -40V BV_{DSS} , 65m Ω $R_{DS(on)}$, P-channel MOSFET**1. Description**

The DMP4065S-7(ES) is P-Channel enhancement MOS Field Effect Transistor. Uses advanced trench technology and design to provide excellent $R_{DS(ON)}$ with low gate charge. Device is suitable for use in DC-DC conversion, power switch and charging circuit. Standard Product DMP4065S-7(ES) is Pb-free.

2. Features

- -40V, $R_{DS(ON)}$ =65m Ω (TYP.) @ V_{GS} =-10V
 $R_{DS(ON)}$ =88m Ω (TYP.) @ V_{GS} =-4.5V
- Fast Switching
- High density cell design for low $R_{DS(on)}$
- Material: Halogen free
- Reliable and rugged
- Avalanche Rated
- Low leakage current

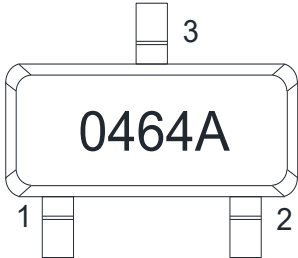
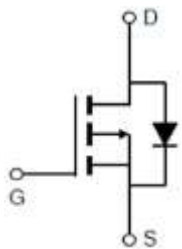
3. Applications

- PWM applications
- Load switch
- Power management in portable/desktop PCs
- DC/DC conversion

4. Ordering Information

Part Number	Package	Marking	Material	Packing	Quantity per reel	Flammability Rating	Reel Size
DMP4065S-7(ES)	SOT-23	0464A	Halogen free	Tape & Reel	3,000 PCS	UL 94V-0	7 inches

5. Pin Configuration and Functions

Pin	Function	Outline	Circuit Diagram
1	Gate		
2	Source		
3	Drain		

6. Specification

Absolute Maximum Rating & Thermal Characteristics

Ratings at 25 °C ambient temperature unless otherwise specified.

Parameter		Symbol	Limit	Unit
Drain-Source Voltage		BV_{DSS}	-40	V
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current	$T_A=25^{\circ}\text{C}$	I_D	-3.0	A
Continuous Drain Current	$T_A=100^{\circ}\text{C}$		-1.9	A
Maximum Power Dissipation		P_D	1.3	W
Pulsed Drain Current		I_{DM}	-12.0	A
Operating Junction Temperature		T_J	-55 to +150	$^{\circ}\text{C}$
Storage Temperature Range		T_{stg}	-55 to +150	$^{\circ}\text{C}$

Thermal resistance ratings

Single Operation				
Parameter	Symbol	Typical	Maximum	Unit
Junction-to-Ambient Thermal Resistance ($t \leq 10\text{s}$)	$R_{\theta JA}$		95	$^{\circ}\text{C/W}$

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Electrical Characteristics

At TA = 25°C unless otherwise specified

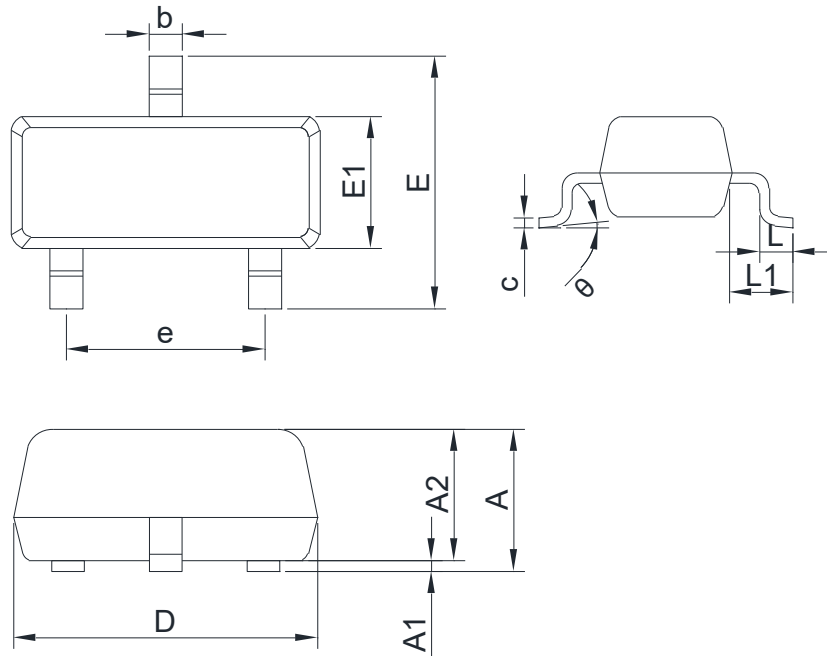
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
OFF CHARACTERISTICS						
Drain-to-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=-250\mu A$	-40			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-40V, V_{GS}=0V$			-1	μA
Gate-to-source Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$			± 100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{GS}=V_{DS}, I_D=-250\mu A$	-1.1	-1.6	-2.2	V
Drain-to-source On-resistance	$R_{DS(on)}$	$V_{GS}=-10V, I_D=-1.2A$		65	85	m Ω
		$V_{GS}=-4.5V, I_D=-1A$		88	111	
CHARGES, CAPACITANCES AND GATE RESISTANCE						
Input Capacitance	C_{ISS}	$V_{GS}=0V, V_{DS}=-20V$ $f=1MHz$		316		pF
Output Capacitance	C_{OSS}			37		
Reverse Transfer Capacitance	C_{RSS}			31		
Total Gate Charge	Q_G	$V_{GS}=0 \text{ to } -10V,$ $V_{DS}=-20V, I_D=-1.2A$		8		nC
Gate-to-Source Charge	Q_{GS}			1.5		
Gate-to-Drain Charge	Q_{GD}			1.7		
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	$t_{d(ON)}$	$V_{GS}=-10V, V_{DD}=-20V$ $I_D=-1.2A, R_G=6\Omega$		6		ns
Rise Time	t_r			5		
Turn-Off Delay Time	$t_{d(OFF)}$			26		
Fall Time	t_f			15		
BODY DIODE CHARACTERISTICS						
Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=-1.5A$			-1.2	V

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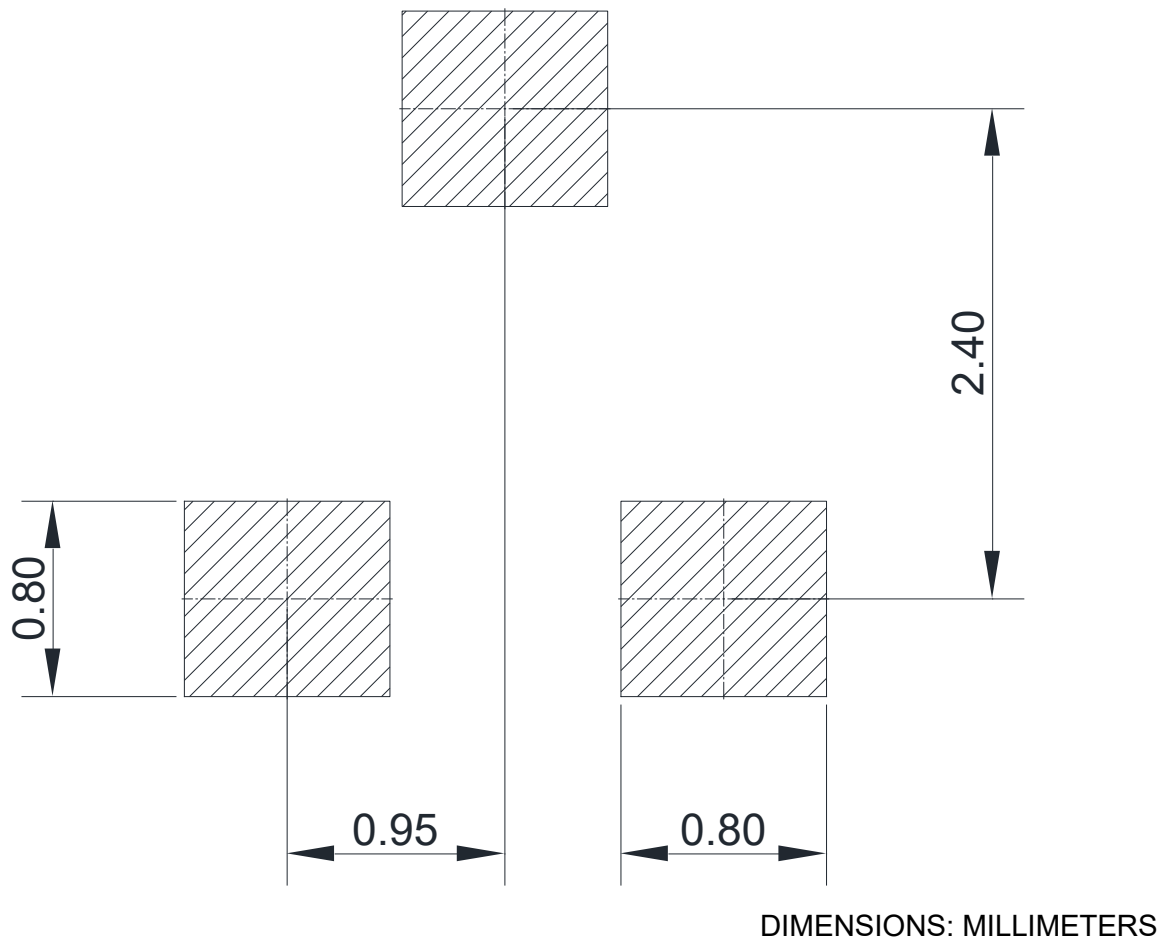
7. Dimension (SOT-23)

POD(Z)



COMMON DIMENSIONS CUNITS MEASURE=MILLIMETER					
SYMBOL	MIN	MAX	SYMBOL	MIN	MAX
A	0.90	1.20	E	2.25	2.55
A1	0.00	0.10	E1	1.20	1.40
A2	0.90	1.10	e	1.80	2.00
b	0.30	0.50	L	0.30	0.50
c	0.07	0.18	L1	0.475	0.625
D	2.80	3.04	θ	0°	8°

8. Recommended Soldering Footprint



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